

A¹
Contd

modes. As shown in FIGS. 2A and 2B, a representative structure 200 includes a first, second, and third semiconductor layers 205, 210, 215, respectively, which form a diode laser as described above. The top layer 215 is provided with a ridge 220 that extends from the rear edge 222 of layer 215 to the front edge 225 thereof. The ridge has an elongated, narrow segment 240 and a flared segment 250 that terminates at the front edge 225. The ridge 220 also contains a doping material (e.g., a rare earth element as discussed above), and a complementary doping material 265 is applied to the bottom surface of layer 205 in a pattern identical to the shape of ridge 220, and in direct opposition thereto. The entire top surface of layer 215 (including the exposed surfaces of ridge 220) and the entire bottom surface of layer 205 are metallized to form electrical contacts 270.

In the claims:

Claims 1-8 are currently in prosecution. Please amend claims 1 and 2 to read as follows (a marked-up version of the amended claims is attached at the end of this Amendment and Response):

*Sub
B¹*

A²

1. (AMENDED) A diode laser comprising:

- a. a plurality of semiconductor layers including a top layer, a bottom layer, and an intermediate emission layer, the top layer including a ridge formed on a top surface thereof and extending to a first edge of the top layer, the layers each having a refractive index associated therewith, the refractive index of the emission layer differing from the refractive indices of the top and bottom layers;
- b. a dopant region contained by the ridge;
- c. means facilitating application of an electric field through the layers, the electric field altering the refractive indices of the layers, the degree of alteration differing within a confinement region defined by the ridge, radiation generated within the emission layer being optically confined within the confinement region and emitted from a first edge of the emission layer;

wherein